

Application No. 109/816,672
Amendment Under 37 C.F.R. §1.111 dated October 20, 2004
Response to the Office Action of July 21, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application.

Listing of claims:

Claim 1 (Currently Amended): A digital camera, comprising:

an image sensor formed, in a light-receiving surface, with a plurality of first light-receiving elements and a plurality of second light-receiving elements;

a first exposurer for subjecting said first light-receiving elements to first exposure for a first period;

a second exposurer for subjecting said second light-receiving elements to second exposure for a second period;

an outputter for separately outputting, from said image sensor, a first charge produced in said first light-receiving elements due to the first exposure and a second charge produced in said second light-receiving elements due to the second exposure; and

a generator for generating a still image signal of one screen on the basis of said first charge and said second charge[;], wherein said first period starts simultaneously with said second period, is shorter than said second period and is overlapped in time with said second period.

Claim 2 (Currently Amended): A digital camera according to claim 1, further comprising a first applier to apply a first charge read pulse to said first light-receiving elements, a second

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applier to apply a second charge read pulse to said second light-receiving elements, a third applier to apply a single charge sweep-out pulse to both said first light-receiving elements and said second light-receiving elements, and a shutter member to mechanically cut off incident light on said light-receiving surface, wherein said first exposurer controls any two of said first applier, said third applier and said shutter member to carry out the first exposure while said second exposurer controls any two of said second applier, said third applier and said shutter member to carry out the second exposure.

Claim 3 (Currently Amended): A digital camera according to claim 2, wherein said first exposurer controls start and end time points of the first exposure by said third applier and first appliers applier, respectively, and said second exposurer controls start and end time points of the second exposure by said third applier and said shutter member, respectively.

Claim 4 (Currently Amended): A digital camera according to claim 2, wherein said first exposurer controls start and end time points of the first exposure by said first applier and said shutter member, respectively, and said second exposurer controls start and end time points of the second exposure by said third applier and said shutter member, respectively.

Claim 5 (Original): A digital camera according to claim 1, further comprising a color filter arranged with a plurality of color elements covering said light-receiving surface, wherein the colors are assigned to both the first light-receiving elements and said second light-receiving elements.

Claim 6 (Original): A digital camera according to claim 5, wherein said color filter comprises a plurality of color blocks including each of the colors, said first and second light-receiving elements being alternately arranged, in a predetermined number in each, in at least one of the vertical and horizontal directions, each of the color elements individually corresponding to each of said first and second light-receiving elements, and the predetermined number being coincident with the number of color elements of the color block in a direction said first and second light-receiving elements are alternately arranged.

Claim 7 (Original): A digital camera according to claim 1, wherein said image sensor is an interline-transfer schemed CCD imager formed with a plurality of vertical transfer registers in said light-receiving surface.

Claim 8 (New): A digital camera, comprising:
an image sensor formed, in a light-receiving surface, with a plurality of first light-receiving elements and a plurality of second light-receiving elements;

a first exposer for subjecting said first light-receiving elements to first exposure for a first period;

a second exposer for subjecting said second light-receiving elements to second exposure for a second period;

an outputter for separately outputting, from said image sensor, a first charge produced in said first light-receiving elements due to the first exposure and a second charge produced in said second light-receiving elements due to the second exposure;

a generator for generating a still image signal of one screen on the basis of said first charge and said second charge, wherein said first period is shorter than said second period and overlapped in time with said second period; and

a color filter arranged with a plurality of color elements covering said light-receiving surface, wherein the colors are assigned to both the first light-receiving elements and said second light-receiving elements, and wherein said color filter comprises a plurality of color blocks including each of the colors, said first and second light-receiving elements being alternately arranged, in a predetermined number in each, in at least one of the vertical and horizontal directions, each of the color elements individually corresponding to each of said first and second light-receiving elements, and the predetermined number being coincident with the number of color elements of the color block in a direction said first and second light-receiving elements are alternately arranged.

Claim 9 (New): A digital camera, comprising:

an image sensor of an interline-transfer type having a light-receiving surface on which a plurality of light-receiving elements and a plurality of vertical transfer registers are formed;

a color filter which is arranged with a plurality of color elements respectively corresponding to said plurality of light-receiving elements;

a shutter member for mechanically cutting off incident light on said light-receiving surface;

a first exposurer for subjecting first light-receiving elements, which are a part of said plurality of light-receiving elements, to first exposure for a first period;

a second exposurer for subjecting second light-receiving elements, which are another part of said plurality of light-receiving elements, to second exposure for a second period;

an outputter for separately outputting, from said image sensor, first charges produced by the first exposure and second charges produced by the second exposure; and

a generator for generating a still image of one screen on the basis of the first charges and the second charges which are outputted by said outputter, wherein

each of said plurality of color elements has any one of a plurality of colors,

said plurality of color elements are formed of a plurality of color blocks to each of which all the plurality of colors are assigned,

said plurality of light-receiving elements are alternated in a specific direction between the first light-receiving element and the second light-receiving element every predetermined number,

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the predetermined number is coincident with the number of color elements existing in the specific direction within each of said plurality of color blocks, and

the first period is shorter than the second period and is overlapped in time with the second period.

Claim 10 (New): A digital camera according to claim 9, further comprising:

a first applier for applying a first charge read pulse to said first light-receiving elements;

a second applier for applying a second charge read pulse to said second light-receiving elements; and

a third applier for applying a charge sweep-out pulse to said first light-receiving elements and said second light-receiving elements,

wherein said first exposurer controls any two of said first applier, said third applier and said shutter member to carry out the first exposure while said second exposurer controls any two of said second applier, said third applier and said shutter member to carry out the second exposure.

Claim 11 (New): A digital camera according to claim 10, wherein said first exposurer controls start and end time points of the first exposure by said third applier and said first applier, respectively, and said second exposurer controls start and end time points of the second exposure by said third applier and said shutter member, respectively.

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Claim 12 (New): A digital camera according to claim 10, wherein said first exposurer controls start and end time points of the first exposure by said first applier and said shutter member, respectively, and said second exposurer controls start and end time points of the second exposure by said third applier and said shutter member, respectively.

Claim 13 (New): A digital camera according to claim 9, wherein said image sensor is a CCD imager.

Claim 14 (New): A digital camera according to claim 9, wherein the specific direction is one of a vertical direction and a horizontal direction.